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LATCH FOR SLIDING SASH WINDOW

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No. OF CLAIMS 6

ABSTRACT OF THE DISCLOSURE

A releasable fastening device for latching a sliding window sash to a frame is disclosed. The present fastening device fits within the body of the sash and leaves no working mechanism exposed to view. Thus, the working mechanism does not become a trap for dirt. The device has a hollow section in at least a portion of an edge of the sash facing an adjacent portion of an edge of the frame. The hollow section is located between two opposing sash faces and a latching member extending outwardly from the adjacent portion of the edge of the frame projects into the hollow section when the sliding sash window is closed against the frame. A trigger mechanism includes a trigger lever pivoted within the hollow section which catches and engages the latching member when the sash is closed against the frame. Pressure means is provided within the hollow section to retain the trigger lever in engagement within the latching member and an operating push spindle projects from the hollow section through the inside sash face, the spindle being linked to the trigger lever and on being pushed, releases the trigger lever from the latching member.

This invention relates to sliding sash windows and in particular to a releasable fastening device for latching a sliding window sash to a frame.

Window constructions wherein horizontal or lateral sliding sashes open and close in fixed frames are well known. In some cases there is one fixed sash and one sliding sash, in other cases, more than one sliding sash. Similarly, the window may be a single or double frame, depending on local climatic conditions. In some cases fly screens are also incorporated

10 in the window assembly. Whatever the type of window, there is always a necessity to latch at least one sliding sash to the fixed frame. Thus, the window is latched closed and cannot be opened from the outside without releasing a latch device. Many latch devices for sliding sash windows are known. The majority of these latches, however, are on one side of the sash, thus generally have their working mechanism exposed to view. This working mechanism becomes a trap for dirt, especially where a hinge or lever mechanism has oil thereon, and is not easy to clean.

It is an object of the present invention to provide a

20 releasable fastening device for latching a sliding window sash which fits within the body of the sash.

It is a further object of the present invention to provide a releasable latch having no working mechanism exposed to view.

With these and other objects in view, there is provided a releasable fastening device for latching a sliding window sash to a frame comprising a hollow section in at least a portion of an edge of the sash facing an adjacent portion of an edge of the frame, the hollow section located between two opposing sash

30 faces, a latching member extending outwardly from the adjacent portion of the edge of the frame, adapted to project into the hollow section when the sliding window sash is closed against the



frame, a pressure means within the hollow section adapted to retain the trigger lever in engagement with the latching member and an operating push spindle projecting from the hollow section to one of the sash faces, the spindle linked to the trigger lever and on pushing adapted to release the trigger lever from the latching member.

In drawings which illustrate embodiments of the invention:

Figure 1 is a cross-sectional view illustrating one embodiment of the fastening device of the present invention with the window sash in the latched position.

Figure 2 is a cross-sectional view of another embodiment of the fastening device with the window sash in the open position.

Figure 3 is a cross-sectional view of the fastening device shown in Figure 2 with the window sash in the partially closed position with the trigger level being opened by the latching member.

Referring now to the drawings, Figure 1 shows an external jamb frame 10. Vehicle has a U-shaped section to receive the sash. Each side of the U-shaped section has a wide portion 11 containing a groove 12 to support a weather strip 13. A latching member 14 having a ratchet-like step 15 extends from the base of the U-shaped section parallel to the two side wide portions 11.

A sliding window sash 17 has a H-shaped section which forms two hollow sections surrounded by three sides. One hollow section, preferably the smaller one, supports a glazing head 18 which, in turn, holds the glass 19. The other hollow section 20 opposite the glass pane 19 supports the trigger mechanism to latch the window sash 17 to the frame 10. The hollow section 20 is formed by an inside extending leg 21 and an outside extending leg 22 which form the inside and outside sash faces. A protruding ridge 23 parallel to the closing edge of the sash, extends from

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inside of the outer leg 22 at the approximate centre inwards to terminate at a bulbous end. This ridge 23 extends for the height of the sash and acts as a pivot point for a trigger lever 24 allowing the trigger mechanism to be located in the hollow portion of the vertical sash member. The trigger lever 24 extends for at least a portion of the height of the window sash and has a front portion 25 with a ratchet catch to engage on the step 15 of the latching member 14 protruding from the frame 10. At the rear of the trigger a bulbous protrusion 26 fits into a socket 27 of a push spindle 28. The push spindle 28 passes through an aperture 29 in the inner leg 21 of the sash 17 and has a round push-button 30 attached to the end of the spindle 28. A leaf spring 31 fits between the inside of the inner leg 21 and the front portion 25 of the trigger lever 24. An inner ridge 21A on the inside of the inner leg 21 and a retaining ridge 24A on the front portion 25 holds the leaf spring 31 in place and prevents it escaping during movement of the trigger lever 24. The leaf spring 31 presses the front portion 25 of the trigger lever 24 into engagement with the ratchet-like step 15 of the latching member 14.

A handle in the form of a rail 32 extending for the height of the sash located perpendicular to the inner leg 21 adjacent the glazing head 18. The rail 32 provides a handle for moving the window sash in the frame.

The trigger lever 24 may extend for a portion of the height of the sash 17 and one or more leaf springs 31 may be provided to hold the trigger lever 24 in position. Only one push button 30 is required to operate the trigger mechanism and this may be positioned at any location on the sash 17 over the trigger lever 24. In operation, to release the trigger mechanism the push button 30 is pressed. This moves the push spindle 28 and the socket 27 which contains the bulbous end 26 of the trigger

lever 24. The trigger lever 24 pivots about the ridge 23 and the front portion 25 disengages from the step 15 on the latching member 14 thus permitting the window sash 17 to be slid along its tracks to open the window. The depressed push button 30 and the open trigger lever 24 are shown in Figure 2. The trigger lever 24 compresses the leaf spring 31 and upon removing pressure from the push button 30 the leaf spring 31 immediately returns the trigger lever 24 to its original position. A stop 33 on the lower portion of the trigger lever 10 24 comes to rest against the sloped surface of the ridge 23, preventing the trigger from pivoting too far, and placing the trigger lever 24 into the position for closing. The front end 25 of the trigger lever 24 has a sloped surface which is substantially parallel to the sloped surface on the step 15 of the latching member. When the sash is closed, the sloped surfaces make contact and the trigger lever 24 pivots about the ridge 23, as may be seen in Figure 3, until the front end 25 of the trigger lever 24 passes over the step 15 of the latching member 14. The trigger lever 24 then moves into the engaged position by means of 20 the pressure from the leaf spring 31. The window sash 17 is now latched to the frame 10 and the window sash cannot be moved until the push button 30 is depressed.

Another embodiment of a jamb frame is shown in Figures 2 and 3. In this embodiment the main frame 40 is rectangular in shape and has openings at the top and the bottom to receive a window sash, the receiving openings being on opposite sides. This provides a versatile, standard frame section which can be used in double window arrangements. A catch frame section 42 is located within the jamb frame section opening by means of a 30 bulbous section 43 forming part of the catch frame 42, sliding into a receiving socket 44 of the jamb frame section 40. Legs 45 on each side of the bulbous section 43 support the catch frame

42 within the main frame 40.

All the sections shown in the figures are preferably extrusions made from aluminum or other suitable material. The trigger lever 24 is also an extrusion and may extend for a portion on the full height of the sash. The trigger lever may be formed from aluminum or other suitable material such as a hard plastic. The push button opener may be a metal such as aluminum or alternatively made from a hard plastic material. Changes to the particular embodiments shown in the
10 drawings may be made, such as the shape of the extrusions, without departing from the scope of the present invention. For example, the leaf spring 31 may be substituted with any other pressure means, such as a coiled spring, rubber, resilient foam plastic or the like.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In a combination of a window sash mounted for sliding in a direction of movement with a frame, the frame having a cross section in the form of a channel with a web perpendicular to the direction of movement of the sash, mating with an edge of the sash when the sash is closed, the channel also having flanges extending inwards covering a portion of two opposing sash faces on each side of the edge of the sash when the sash is closed, the improvement of a releasable latching device forming part of the sash and the frame to hold the sash closed, comprising, a hollow section in at least a portion of the edge of the sash located between the two opposing sash faces, a latch member extending inwards from the web of the frame in the direction of movement of the sash, but not beyond the flanges of the frame, the latch member adapted to project into the hollow section when the sash is closed, a trigger mechanism including a trigger lever pivoted within the hollow section, adapted to catch and engage the latching member when the sash is closed, a pressure means within the hollow section adapted to retain the trigger lever in engagement with the latching member, and an operating push spindle projecting from the hollow section through one of the sash faces, the spindle linked to the trigger lever and on pushing adapted to release the trigger lever from the latching member.

2. The releasable fastening device of claim 1 wherein the sliding window sash is formed from extruded aluminum sections and wherein the hollow section is enclosed by two extending legs having the sash faces on their outside.

3. The releasable fastening device of claim 1 including a pull handle extending perpendicularly from one face of the sash.

4. The releasable fastening device of claim 1 wherein the operating push spindle has a push button outside the sash face.

5. The releasable fastening device of claim 1 wherein the pressure means is a leaf spring.

6. The releasable fastening device of claim 2 wherein the trigger lever and the frame are formed from extruded aluminum sections.



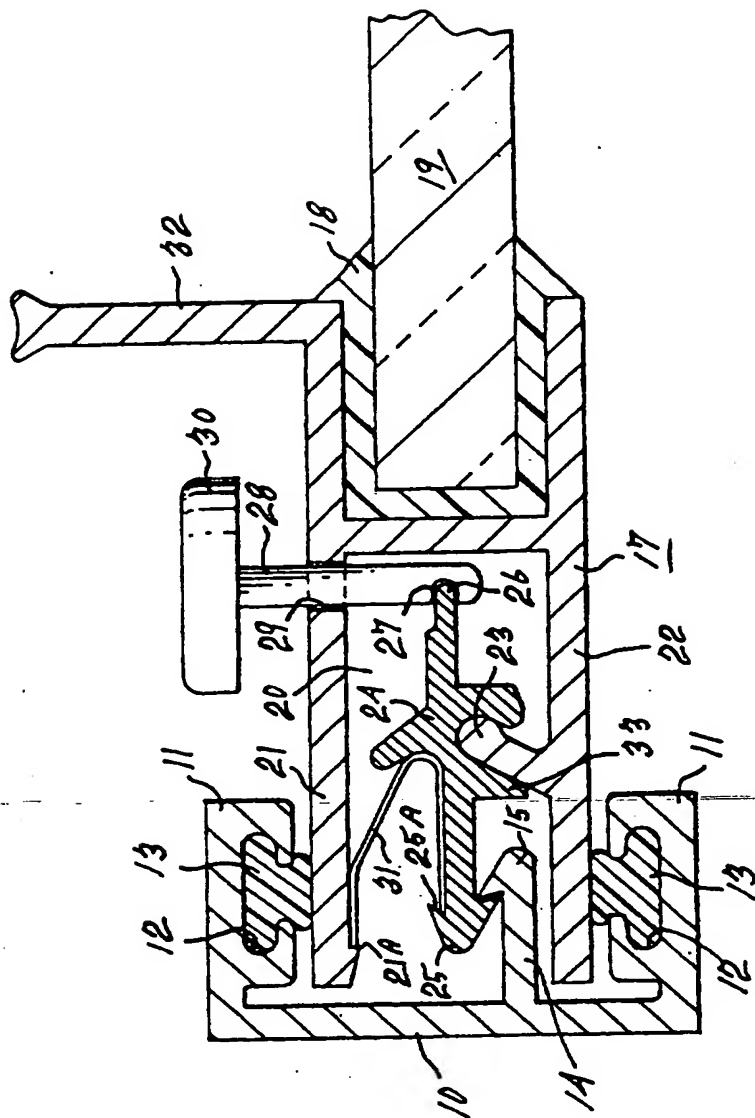


fig-1

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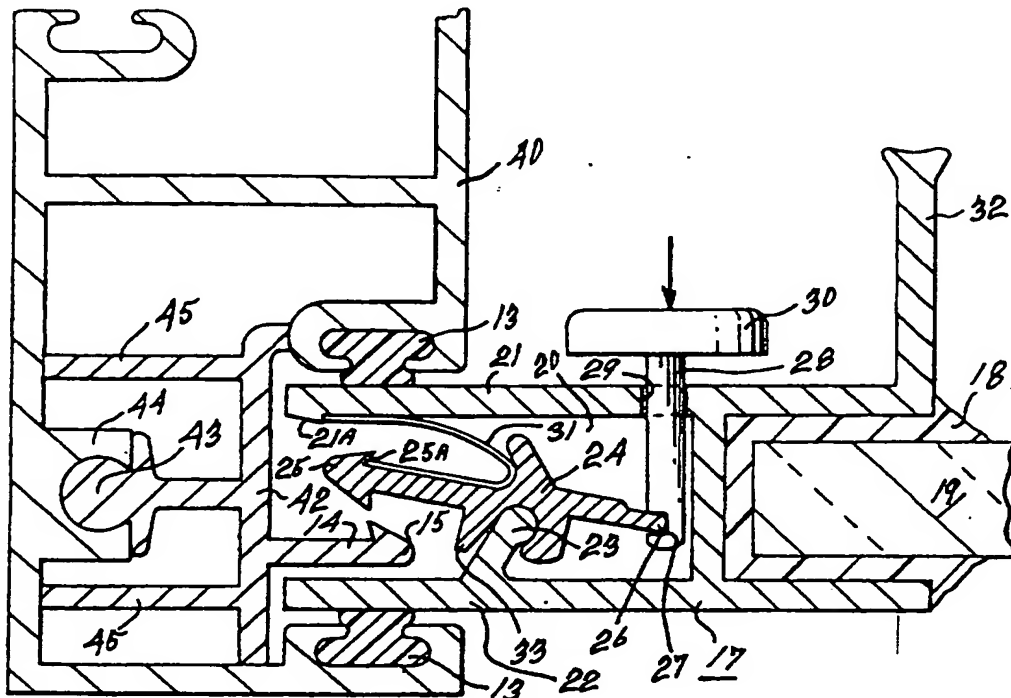


Fig-2

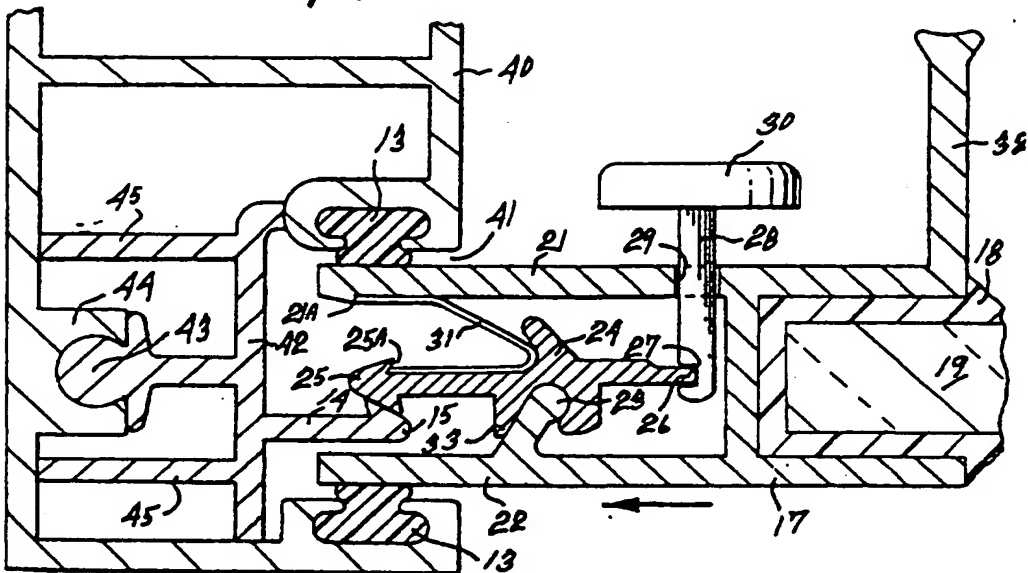


Fig-3

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